

**BY ORDER OF THE COMMANDER  
AIR FORCE GLOBAL STRIKE  
COMMAND**

**AIR FORCE GLOBAL STRIKE COMMAND  
INSTRUCTION 32-1056**

**22 FEBRUARY 2013**

**Civil Engineering**

**AIRFIELD AND HELIPORT WAIVER  
PLANNING AND DESIGN**



---

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

---

**ACCESSIBILITY:** Publications and forms are available on the e-Publishing website at [www.e-publishing.af.mil](http://www.e-publishing.af.mil) for downloading or ordering.

**RELEASABILITY:** There are no releasability restrictions on this publication.

---

OPR: AFGSC/A7PP

Certified by: HQ AFGSC/A7P  
(Ms. Suzanne Bilbrey)

Pages: 10

Supersedes: N/A

---

This instruction implements Air Force Policy Directive (AFPD) 32-10, *Installations and Facilities*. Use this instruction with *Unified Facilities Criteria* (UFC) 3-260-01, *Airfield and Heliport Planning and Design*; UFC 3-535-01, *Visual Air Navigation Facilities*; AFI 32-1042, *Standards for Marking Airfields*; AFI 32-1044, *Visual Air Navigation Systems* and AFI 32-7063, *Air Installation Compatible Use Zone Program*. Relevant is AFI 13-204v3\_AFGSCSUP, *Airfield Operations Procedures and Programs*. This instruction outlines procedures for preparation and submission of temporary and permanent airfield waiver requests for all violations of airfield/heliport planning and design criteria and facility sitings for proposed or existing facilities within the land use control portion of the clear zone and accident potential zones. Waiver procedures contained herein apply to violations of the policies as mentioned above. It applies to all AFGSC airfields, heliports and base agencies having responsibilities for coordinating, processing and managing these processes. This instruction does not apply to the Air National Guard and the Air Force Reserve Command units. Send comments and suggested improvements on AF Form 847, *Recommendation for Change of Publication*, to the HQ AFGSC/A7P Workflow email mailbox. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>.

## Chapter 1

### AIRFIELD OBSTRUCTION MANAGEMENT PROGRAM

#### *Section 1A—General Information*

**1.1. Overview.** Physical airfield infrastructure encompasses design, markings, lighting, signage, pavement, lateral and vertical clearances, drainage, transportation and arresting systems. Criteria are established regarding each of these elements in DOD and/or Air Force guidance. When those criteria must be violated, then a waiver is required. Waiver approval is reserved for significant mission requirements, conditions or situations for which no viable, practical alternatives exist. Requests for waivers of fixed wing and rotary wing airfield planning and design criteria other than construction and air show waivers require AFGSC approval. **Note:** The term “*airfield*” in this instruction addresses facilities for both fixed wing and rotary operations unless otherwise specified.

1.1.1. Waivers. Approvals of waivers to violations of criteria are considered for airfield required facilities/equipment only when no other feasible alternatives exist and facility or equipment is required to be sited in violation of criteria to meet mission requirements. Waivers must be submitted to HQ AFGSC/A7P (Civil Engineer Programs Division) for review/approval before design start. Requests for permanent airfield and intrusion into airspace waivers require an evaluation of alternatives; must clearly show no other feasible alternatives exist; and must describe the precautionary measures for mitigating the accepted risk.

#### *Section 1B—Responsibilities*

**1.2. Roles and Responsibilities.** Waivers processed for AFGSC consideration will be initially prepared, coordinated and approved at the installation level, following locally developed procedures for processing and approving these types of waivers and then submitted to HQ AFGSC/A7P for notice or for approval, as appropriate.

1.2.1. Airfield Working Group. The installation commander or equivalent shall establish an Airfield Working Group (AWG). Chaired by Airfield Management (AM), at minimum representation shall include members from Safety (SE), Civil Engineer (CE) Programs Flight (CEP), CE Asset Management Flight (CEA), CE Operations Flight (CEO) and Terminal Enroute Procedures (TERPS).

1.2.1.1. Waiver Review. The installation commander must ensure that the AWG will: review the number and status of permanent/temporary airfield waivers, the status of deteriorating airfield/runway conditions and brief the Airfield Operations Board (AOB) in accordance with (IAW) AFI 13-204v3, *Airfield Operations Procedures and Programs*. The Operations Support Squadron commander or a designated representative shall notify the Base Civil Engineer (BCE) or a designated representative, of proposed AOB meetings. The BCE or designated representative will attend all AOB meetings.

1.2.1.2. Airfield Advocate. The AWG monitors and processes waiver requests and proposes projects to eliminate waivers. The AWG advocates for funding to improve airfield conditions through the Transportation Networks and Airfield Pavements Plan Manager and the Facilities Board (FB). The AWG requests Air Installation Compatible Use Zone (AICUZ) studies and

provides technical and policy support for any airfield related Joint Land Use Studies that are conducted. IAW Department of Defense Instruction (DoDI) 4165.57, *Air Installation Compatible Use Zones (AICUZ)*, military departments are required to develop, implement and maintain an AICUZ program for installations with flying operations. AICUZ studies are to be updated in accordance with AFI 32-7063, *Air Installation Compatible Use Zone Program*. The BCE or designated representative is responsible for the AICUZ program.

1.2.1.3. Annual Inspection. The AWG conducts the annual airfield certification/safety inspection and presents annual airfield waiver review to Facilities Board (FB). The AWG should complement and coordinate with other mandated forums such as the Installation Encroachment Management Team.

1.2.1.4. AWG Training. Members of the AWG must accomplish and document training in the individual's training records. It is recommended that each member receive annual recurring training on airfield/airspace waiver criteria. All AWG members must complete the Air Force Civil Engineer Support Agency (AFCESA) Airfield Criteria Course for Civil Engineers, Airfield Managers and Wing Safety computer-based training (CBT). AWG members must complete the Air Force Flight Standards Agency (AFFSA) Airfield Inspections/Maintenance CBT and the Operational Risk Management (ORM) Fundamentals course found in the ORM University located on the USAF Risk Management Information System website at <https://rmis.kirtland.af.mil>. Completion of the Advanced Airfield Managers course is strongly recommended for AWG primary team members.

1.2.2. Base Civil Engineer. The BCE is responsible for physical airfield infrastructure. The annually updated Air Traffic System Evaluation Program checklist found at AFFSA Community of Practice (CoP) provides useful overview of regulated airfield infrastructure elements that are the responsibility of CE.

1.2.2.1. CE Training. AFGSC and installation CE staff personnel assigned airfield planning and design responsibilities must complete AFCESA Airfield Criteria Course for Civil Engineers, Airfield Managers and Wing Safety. HQ AFCESA/CEOA provides the course files.

1.2.2.2. AFGSC Civil Engineer Staff. HQ AFGSC/A7P is responsible for coordination and review of waivers, managing the AFGSC airfield waiver internet repository and providing GeoBase support. The AFGSC Community Planner is the action officer for management of the waiver review process.

1.2.2.3. AFGSC Review. HQ AFGSC/A7P coordinates requests for waivers and the annual waiver review at a minimum with the following HQ AFGSC Directors: Safety (SE); Airfield Operations (A3, including Airfield Manager – A3B); Installation, Logistics and Mission Support (A4/7); and Communications (A6). Additionally, includes coordination with ACC TERPS located at Langley AFB, before submitting waiver requests to the AFGSC approving official.

1.2.2.4. GeoBase Support. At the Installation level, it is required that CE, Airfield Management and Safety accurately identify the status of features and facilities on airfield maps as exempt (constructed under previous, less stringent standard), permissible deviation (authorized as deviation and sited correctly) or as a violation IAW UFC 3-260-01, 1-4.1., Appendix B, Section 1, B1-2.1.1. A map of approved waived items and mapped Building Restriction Line (BRL) is to be part of the annual review IAW UFC 3-260-01, Appendix B, Section 1, B1-2.5.4.3. Consult AFI 32-10112, *Installation Geospatial Information and Services (Installation GI&S)*, to clarify

responsibilities of maintaining the mission data layers and providing map support.

### ***Section 1C—Existing Conditions***

**1.3. Existing Facilities.** Certain existing airfield facilities may have been located or constructed under previous standards. If determined to be exempt, such existing facilities need not be modified nor upgraded if they meet current mission essential requirements, meet applicable fragility and other requirements and comply with criteria in UFC 3-260-01, Chapter 1, Section 1-4.

1.3.1. Exempt Facilities. IAW AFI 32-7062, *Air Force Comprehensive Planning*, installation personnel must identify the status of features and facilities on the appropriate map series as exempt. Exempt facilities and features are not intended to be expanded, but may be reconstructed. The BRL encompasses vertical facilities along the flight line that are exempt because they were constructed under previous standards. All exemptions must be documented with photos, age of construction, location, etc. in accordance with *Section 3B Waiver Contents*.

1.3.2. Permissible Deviations. Installations must ensure all violations of airfield planning and design criteria classified as permissible deviations comply with deviation criteria in UFC 3-260-01, Appendix B and Section 13-2.

**1.4. Marking Obstructions.** Regardless of the status of the waiver, all objects or structures that penetrate an airfield imaginary surface, as described in UFC 3-260-01, must be marked IAW AFI 32-1042, *Standards for Marking Airfields*, and Federal Aviation Administration (FAA) Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting*, so they are conspicuous during day Visual Flight Rules (VFR) conditions. In addition, the objects or structures penetrating the airfield imaginary surfaces must also have a red obstruction light installed IAW UFC 3-535-01, *Visual Air Navigation Facilities*. Any deviation from these requirements must be programmed for correction and will require an airfield waiver.

**1.5. Airfield Obstruction Reduction Initiative (AORI).** All correctable violations of airfield criteria, regardless of classification (waiver, exemption or non-classified), must be programmed for elimination IAW HQ USAF AORI guidance and identified in the wing's Base Comprehensive Asset Management Plan and the Automated Civil Engineer System database.

## **Chapter 2**

## **WAIVERS**

### ***Section 2A—Waiver Approval Authority***

**2.1. Waivers Approval Authority.** The following is a list of approval authorities for deviations to airfield/heliport design criteria:

2.1.1. AFGSC/CV: Airfield/Heliport Design (UFC 3-260-01 deviations, except where delegated to the installation commander, such as for Air Show and temporary construction waivers).

2.1.2. HQ AFGSC Civil Engineer: Airfield/Heliport Lighting (UFC 3-535-01 deviations) and Clear Zone Siting requests (AFI 32-7063) (except construction and air show) and AFI 32-1044, *Visual Air Navigation Systems*.

2.1.3. HQ AFGSC/A3: Airfield Markings (all operational waivers AFI 32-1042 deviations, except where delegated to the installation commander)

2.1.4. Wing/CC: Air show, temporary construction waivers, and wingtip clearance violations as prescribed IAW AFI 11-218\_AFGSC SUP, *Aircraft Operations and Movement on the Ground*.

### ***Section 2B—Existing Waivers***

**2.2. Existing Waivers.** All AFGSC approved temporary and permanent waivers to UFC 3-260-01, UFC 3-535-01, AFI 32-1042 and AFI 32-1044 will be mapped to the GeoBase airfield obstruction system.

**2.3. Waiver Management.** All AFGSC approved waivers shall be managed so that all conditions included in the granting agency's original waiver approval, safety precautions and additional conditions resulting from AFGSC waiver reviews are met.

**2.4. Waiver Library.** The AFGSC airfield waiver internet repository provides the location where all airfield waivers are uploaded electronically by the installations. Contact HQ AFGSC/A7PP for location and access to the repository.

**2.5. Waiver Review.** The installation commander shall submit an airfield/airspace waiver review package of permanent and temporary waivers to HQ AFGSC/A7P within 90 days of accepting command. A summary of temporary waived items must be presented to the FB each year for information and action IAW UFC 3-260-01, Appendix B, Section 1, B1-2.2.2.3. Installation Commanders are also required to submit a formal review of waivers annually thereafter to AFGSC, not later than 30 days after FB review and prior to 31 December each year. Utilize AFGSC Form 583, *Approved Waivers to Airfield and Airspace Criteria*, for waiver reviews.

2.5.1. Time Extension. A time extension may be granted when a change of command is scheduled to occur within 90 days of the required submission date. In such cases, the required submission date will be extended to prevent the need to re-accomplish the waiver review process twice within a 180 day period.

2.5.2. Waiver Review Content. Review content will include total number of existing waivers (including all permanent, temporary and exemptions), number of new waivers for the past year, number of eliminated waivers for the past year and priority/plan/budget for waiver reduction for the next year. Additionally, the location and identification of permissible deviations will be provided in a separate electronic map. Electronic copies of annual review and minutes of FB will be transmitted to AFGSC/A7P for record prior to 31 December each year and also uploaded electronically to the AFGSC airfield waiver internet repository.

2.5.3. Limitations on Content. Annual airfield/airspace waiver review packages shall be limited to only current AFGSC approved waivers. New waiver requirements will be submitted separately.

### ***Section 2C—Temporary Waivers***

**2.6. Temporary (Non-Permanent) Waivers.** Request for temporary waivers for deviations from the airfield and airspace planning criteria will not be approved if corrective action is not executable immediately or in the identifiable future. For instance, when a hazardous condition arises that must be in place for six months pending a corrective project, a temporary waiver is required. Each temporary waiver request must identify precautionary safety measures for the duration of the waiver. Temporary waivers will not exceed five years. Requests for temporary

(non-permanent) waivers, as defined in UFC 3-260-01 must present compelling justification to violate criteria, and contain information that clearly demonstrates no viable, practical alternative exists that meets criteria. All waivers must include appropriate ORM analysis.

2.6.1. Temporary Additional Requirements. For all waivers classified as temporary (non-permanent), as defined in UFC 3-260-01, must include:

2.6.1.1. An Operational Risk Assessment.

2.6.1.2. Project number/Work Order

2.6.1.3. Project Description

2.6.1.4. Estimated Cost

2.6.1.5. Programmed FY

2.6.1.6. Wing Priority Number

2.6.1.7. Est. Start and completion dates

2.6.2. Temporary waivers must have a project or work order in place to correct the violation IAW UFC 3-260-01, Appendix B, Section 1, B-1-2.

2.6.3. Airfield Construction Waivers. The installation commander is the approval authority for approving temporary waivers for construction activities on the airfield that are to be prepared IAW UFC 3-260-01, Appendix B, Section 1, B1-2.5.4.7 through B1-2.5.4.7.4. The BCE is required to submit FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, to the regional FAA office a minimum of 45 days prior to construction start date IAW Code of Federal Regulations, Title-14 Aeronautics and Space, Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. The BCE will coordinate with the Airfield Manager and Safety before filing the form with the FAA. Once approved or disapproved, the response is to be coordinated with Airfield Management and TERPS IAW UFC 3-260-01, Appendix B, Section 1, B1-2.5.4.7 and Section 5. For airfield construction designs not meeting UFC requirements, a waiver approved by AFGSC is required. AFGSC approved waivers must be received prior to start of construction IAW UFC 3-260-01, B1-2.1.1. Provide info copy of waiver to HQ AFGSC/A7P Workflow with ORM assessment to AFGSC at least 15 days prior to start of construction activity. Concurrently, airfield construction waivers are to be uploaded electronically to the AFGSC airfield waiver internet repository.

2.6.4. Air Show Waivers. The installation commander is the approval authority for approving temporary waivers for air shows IAW UFC 3-260-01. Provide info copy of waiver with ORM assessment to HQ AFGSC/A7P Workflow and upload to AFGSC internet repository no later than seven duty days before the air show start date

### ***Section 2D—Permanent Waivers***

**2.7. Permanent Waivers.** Requests for waivers must present compelling justification to violate criteria and contain information that clearly demonstrates no viable, practical alternative that meets criteria exists. AFGSC Form 582, *Request for Waiver to Airfield and Airspace Criteria*, is used for all waiver requests. Waiver requests must meet all requirements of UFC 3-260-01 and be submitted as described in **Chapter 3**, Waiver Procedures.

**2.8. Facility Siting within the Land Use Control Area of the Clear Zone.** The HQ AFGSC

Civil Engineer is the approval authority for new land use or facility construction within the Land Use Control Area of the 3000' x 3000' end of runway clear zone that IAW AFI 32-7063.

Locally approved siting requests must be submitted to HQ AFGSC/A7P for final staffing and approval by AFGSC/A7C, via email to HQ AFGSC/A7P Workflow with attached request and also by uploading to AFGSC airfield waiver internet repository. The graded area of the clear zone and the Mandatory Frangibility Zone must be managed IAW UFC 3-260-01.

**2.8.1. Clear Zone Siting Requirements.** All requests for clear zone siting must be fully justified, include a risk assessment with mitigation strategies to reduce risk, and include a diagram or sketch of the facility location within the runway's clear zone.

**2.9. Facility Siting within Accident Potential Zones.** Land use within the clear zones and accident potential zones, on and off base, must be managed IAW the AICUZ program guidelines. These guidelines are designed to protect the installation's flying mission and to encourage local municipalities to manage off-base development within these zones to protect the public from the noise and safety impacts created by aircraft operations. Installations should refer to UFC 3-260-01 Appendix B, Section 3 to determine recommended appropriate land uses.

**2.10. Aircraft Parking Plans.** Revisions to aircraft parking plans, GeoBase/Comprehensive Plan map, do not require AFGSC approval as long as no violations of Air Force criteria result from their implementation. Violations of criteria associated with implementation of aircraft parking plans require AFGSC/CV waiver approval. Aircraft parking areas should be evaluated by the Airfield Working Group to identify violations or deviations to airfield design criteria (such as markings, obstructions, and wing tip clearance violations) that will require corrective action or waived by the appropriate waiver approval authority. **Note:** See AFI 11-218\_AFGSCSUP for additional guidance on waivers to aircraft operations within the vicinity of airfield obstructions.

## Chapter 3

### WAIVER PROCEDURES

#### *Section 3A—Waiver Submittal Process*

**3.1. Waiver Request Format and Routing.** This guidance applies to all waivers for violations to UFC 3-260-01, UFC 3-535-01, AFI 32-1042, AFI 32-1044 and 32-7063. AFGSC Form 582 and AFGSC Form 167, *AFGSC Operational Risk Management (ORM) Worksheet*, are the prescribed forms to be utilized in making waiver requests.

**3.2. Waiver Request Submission.** Each new waiver request must be submitted electronically by the installations separately in a single "pdf" package to HQ AFGSC/A7P Workflow and concurrently uploaded to the AFGSC airfield waiver internet repository.

#### *Section 3B—Waiver Contents*

**3.3. Submittal Package Contents.** The following items are required for all waiver requests, documentation of exemptions and notification actions.

**3.3.1. Documentation of Local Approval.** A letter from the installation commander reflecting that the waiver request has been approved for submission and coordinated with all installation agencies identified in UFC 3-260-01 and this instruction. Letter should be in Official

Memorandum format directed to the office of approval, for instance, AFGSC/CV. This cover sheet will provide an appropriate summary of request, findings and materials submitted within the packet.

3.3.2. Description. A complete description of the facility, equipment or condition requiring a waiver including, but not limited to: exact geographic location (latitude/longitude), facility dimensions, construction materials, supporting equipment, utilities and appurtenances, height above ground level, imaginary surface or zone penetrated, distance from runway/taxiway/apron centerline and/or edge, distance being violated, facility use/contents and number of occupants. Photographs and/or digital images at an appropriate scale must be included for illustrative purposes.

3.3.3. Criteria Being Violated. Include detailed identification of all criteria that will be violated. Include the specific references from the relevant UFC, AFI or other guidance.

3.3.4. Requested Waiver. Identify waiver type requested - either permanent or temporary (non-permanent), as defined in UFC 3-260-01 and summary of other required information on AFGSC Form 582.

3.3.5. Site Plan. A site plan that portrays all proposed facilities, utilities, infrastructure, and support equipment (including, but not limited to, concrete slabs, bollards, generators, AC units, external fuel tanks) in the clear zone with respect to the runway threshold, extended runway centerline, mandatory frangibility zone and applicable imaginary surfaces. The site plan must be dimensioned or drawn to scale and submitted in “jpg” or “pdf” format.

3.3.6. Justification. Include a complete justification for the waiver including an explanation of why all applicable criteria cannot be met. Funding will not be used as sole justification for a waiver request.

3.3.7. Alternatives Analysis. The results of an alternatives analysis that includes, at a minimum: description of each alternative/site considered; risks and benefits associated with each alternative; and rationale for selecting an alternative that violates criteria in lieu of an available option that does not.

3.3.8. Documentation of Risk. An ORM analysis on each proposed waiver request shall be completed by the AWG in accordance with AFI 90-901, *Operational Risk Management*. Results shall include a description of all safety precautions and measures that will be implemented to minimize the risks associated with the violation. Examples include: obstruction lighting/markings, Notice to Airmen (NOTAM), identification on the Airport Diagram published in the DOD Terminal Flight Information Publication (FLIP) and/or airfield restrictions published in the Airfield Operations instruction. Utilize prescribed AFGSC Form 167 to submit the results of this ORM.

3.3.9. Federal Aviation Authority Required Form. Include a copy of FAA Form 7460-1 if project requires FAA notification in accordance with UFC 3-260-01.

### ***Section 3C—Waiver Naming.***

**3.4. Waiver/Obstruction Naming Standards.** Going forward, all AFGSC approved waivers will be named as illustrated in **Table 3.1.**

#### **Table 3.1. Waiver Nomenclature.**



A = Calendar year in two digits	D = Location
B = Four letter base designation AWUB – Barksdale AFB GHLM – FE Warren AFB NZAS – Malmstrom AFB QJVF – Minot AFB YWHG – Whiteman AFB	A – Apron AS – Airspace C – Clear Zone F – Frangibility Zone P – Primary Zone I – Inner O – Outer T – Taxiway
C = Two letter code type of waiver PW – Permanent TW – Temporary EE – Exemption	E = Incremental Number of each type of waiver F = (optional)

3.4.1. Waiver numbering will be cumulative, so if there are already six existing permanent waivers on the taxiway at Whiteman AFB, then the next number of a new permanent waiver in 2011 would be 11YWHGPWT7. At the option of the installation, a maximum of three alphanumeric characters, inside ( ) may be used to further identify the location of the waiver on the airfield (example: (DE) = DELTA EAST) resulting in a waiver identified as 11YHGPWT7 (DE). In summary, waiver names will equal A+B+C+D+E plus an optional F.

LAWRENCE S. KINGSLEY, SES-2, DAF  
Director, Logistics, Installations and Mission Support

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 11-218, *Aircraft Operation and Movement on the Ground*, 01 February 2010

AFI 13-204v3, *Airfield Operations Procedures and Programs*, 01 September 2010

AFI 13-204v3\_AFGSCSUP, *Airfield Operations Procedures and Programs*, 20 December 2010

AFI 32-1042, *Standards for Marking Airfields*, 27 October 2005

AFI 32-1044, *Visual Air Navigation Systems*, 04 March 1994

AFI 32-7062, *Air Force Comprehensive Planning*, 01 October 1997

AFI 32-7063, *Air Installation Compatibility Use Zone*, 13 September 2005

AFI 32-10112, *Installation Geospatial Information Services*, 19 October 2007

AFI 90-901, *Operational Risk Management*, 01 April 2000

AFPD 32-10, *Installations and Facilities*, 04 March 2010

CFR Title-14 Aeronautics and Space, Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, 15 January 2013

DOD Instruction 4165.57, *Air Installations Compatible Use Zone (AICUZ)*, 02 May 2011

FAA Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting*, 02 January 2007

UFC 3-260-01, *Airfield and Heliport Planning and Design*, 17 November 2008

UFC 3-535-01, *Visual Air Navigation Facilities*, 17 November 2005

**Prescribed Forms**

AFGSC Form 167, *AFGSC Operational Risk Management (ORM) Worksheet*

AFGSC Form 582, *Request for Waiver to Airfield and Airspace Criteria*

AFGSC Form 583, *Approved Waivers to Airfield and Airspace Criteria*

**Adopted Forms**

AF Form 847, *Recommendation for Change of Publication*

FAA Form 7460-1, *Notice of Proposed Construction or Alteration*